

ON A SMALL FOSSIL MARSUPIAL ALLIED TO
PETAURUS.

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(Plate XLVI.)

In the bone breccia deposit in the neighbourhood of the Wombeyan Caves in which I discovered *Burramys*, I have been fortunate in finding the remains of another small marsupial, also new to science. Of this form I have obtained the greater part of an upper jaw, and an almost complete and two imperfect lower jaws, and also a most important portion of the cranium.

From the structure of the teeth the form is closely allied to *Petaurus* and to *Gymnobelideus*, and though further details may lead to its being included in one or other of these genera, as it presents features distinct from both and also affinities with each I have provisionally placed it in a new genus.

PALÆOPETAURUS ELEGANS, g. et sp.nov.

Dental Formula:—As in *Petaurus* and *Gymnobelideus* so far as known.

Upper Jaw:—Incisors unknown; canine somewhat conical, less flattened than in *Petaurus* and somewhat shorter proportionately; first premolar smaller than the canine, conical and rather blunt at the apex, single-rooted, antero-posterior length of base very slightly greater than the height, in the unworn tooth possibly less; second premolar (pm.³) with very low crown as in *Petaurus* and considerably developed antero-posteriorly, with the main cusp a little in front of the centre of the tooth instead of behind it as in *Petaurus*, and with two well developed diverging roots; third premolar (pm.⁴) large and triangular, proportionately larger than in *Petaurus* and *Gymnobelideus*,* and appreciably higher than the canine; first molar differing from *Petaurus* in having the two

* McCoy. Prodr. Zool. Vict. Decade x. Pl. xci. (1883).

inner cusps very small and brought close together, giving the tooth more of a rounded triangular shape than the rough quadrangular in *Petaurus*—judging from the figure a similar condition would seem to be present in *Gymnobelideus*; second molar apparently similar to the first and thus differing from *Gymnobelideus*, where it appears to be oblong and quadrangular; the fourth molar appears to resemble that of the two allied genera.

Lower Jaw.:—Incisor well developed, almost horizontal, sharp pointed and curving slightly upwards; minute premolars unknown, but judging from the sockets probably as in *Petaurus*; fourth premolar about half the size of the first molar with a blunt pointed cusp on the middle of the anterior half, and a rounded cusp on the posterior end; the first molar similar in structure to that in *Petaurus*, but with a less development of the anterior cusp; the second molar differs from that in *Petaurus* in having a greater development of the anterior and inner cusp, which from the inner side gives it much the appearance of the first molar; third and fourth molars unknown.

The lower jaw is much slenderer than in *Petaurus*, and bears a considerable resemblance to that in *Gymnobelideus*. The external muscular depression is even shallower than in *Petaurus breviceps*. In *Gymnobelideus* according to the figure the depression ends in front rather sharply towards the lower part of the jaw, as in *Petaurus*. In *Palceopetaurus* the depression ends, but not abruptly, somewhat above the line of the axis of the jaw, and thus differs from both the allied genera. The angle of the jaw appears to be slender, and more like that of *Gymnobelideus* than of *Petaurus*.

Of the upper jaw little is known beyond the teeth, but sufficient of the palate is preserved to show that though there may have been a palatal vacuity, it must have been much smaller than in *Gymnobelideus*.

I have discovered two perfect frontal bones, which, with little doubt, are to be referred to this form. These present a remarkable resemblance to those of *Gymnobelideus*, and differ from those of *Petaurus* in the absence of the post-orbital ridges.

The following are some of the principal measurements :—

Upper jaw.	Lower jaw.
Canine, height about 1.1 mm.	Length of lower jaw from front of incisor to condyle..... 23.2 mm.
ant. post. length about... 1.1 ,,	Depth behind m ³ 3.3 ,,
1st premolar, height..8 ,,	Depth behind m ¹ 3.8 ,,
ant. post. length9 ,,	Lower molars..... 6.3 ,,
3rd premolar, height4 ,,	Incisor..... 5. ,,
ant. post. length 1. ,,	Incisor to m ⁴ 13. ,,
4th premolar, height 1.2 ,,	
ant. post. length 1.6 ,,	
1st molar, ant. post. length 1.8 ,,	
2nd molar, ditto..... 1.7 ,,	

Locality.—Near Taralga, N.S.W.

Formation.—Pleistocene (?).

In taking into consideration the various points considered above, it will be observed that the remains are those of a small animal in many respects resembling *Gymnobelideus*, but with a number of the characters of *Petaurus*. In many respects it stands intermediate between the two genera, and not improbably may be the common ancestor of both. In *Gymnobelideus* upper pm¹ and pm³ are described as “both triangular and single rooted.” In *Petaurus* all the upper premolars are “two-rooted.” In *Palaeopetaurus* we have the intermediate condition in pm¹ single-rooted, and pm³ double-rooted. Then, again, as to the relative sizes of these teeth, in *Petaurus* we have “p¹ nearly as large as p⁴, p³ much smaller, but not minute.” In *Palaeopetaurus* pm⁴ is at least a half larger than pm¹, while pm³ is but half the height of pm¹. In *Gymnobelideus* the two front premolars are much more equal.

In conclusion I must express my gratitude to Mr. J. J. Fletcher for his kindness in furnishing me with references, &c.

EXPLANATION OF PLATE.

Palaeopetaurus elegans.

Fig. 1.—The right maxillary teeth with palate—viewed slightly obliquely from below ($\times 8.3$).

Fig. 2.—Outer view of right lower jaw ($\times 4$).

Fig. 3.—First and second lower molars—viewed from within ($\times 16$).